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ABSTRACT

The future presents us with seemingly insurmountable tasks. Most experts agree that we have only a very short time to adopt policies that will keep technology from destroying our planet. The increasingly rapid rate of change creates a milieu based primarily on temporary relationships and increases the rate at which the individual is called on to make adaptive decisions. This means that the individual is less and less able to deal with reality through preprogrammed decisions, and is forced into more creative decisionmaking. If we do not learn to understand and guide the great forces of change at work in our world today, we may find ourselves, like the Shafter cow, swallowed up by vast upheavals in our way of life. (Author)

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President Bill, President Paul, distinguished head table guests, ladies, gentlemen, and friends, (I hope). You have done me no small honor in asking me to share with you my views and opinions. It is doubly gratifying to have this invitation come from friends who have known me for many years, and who, undoubtedly, are more fully aware of my limitations and shortcomings than I am myself.

You know, of course, that I profess no powers of divination. In our land today, many people are clamoring for prophets and soothsayers and oracles. And there is a multitude of candidates. Clairvoyants, like rabbits, seem to multiply in society's agonizing periods of transition.

But what of the Shafter cow. Surely, no one present is old enough to remember the incident. At 5:13 a.m. on the 18th of April in the year 1906, a somewhat contented cow was standing between the main barn and the milking shed on the old Shafter ranch in California, minding her own business. Suddenly, the earth shook, the skies trembled, and when it was all over there was nothing showing of the cow above the ground but a bit of her tail sticking up. For the student of change, the Shafter cow is a symbol of our times. She stood quietly enough, thinking such gentle thoughts as cows are likely to have, while huge forces outside her ken built up around her and, within a minute, discharged their might--a great movement that changed the configuration of the earth, destroyed a city and swallowed her up. And that's what I'm going to talk about this morning; how, if we do not learn to understand and guide the great forces of change at work in our world today, we may find ourselves, like the Shafter cow, swallowed up by vast upheavals in our way of life--quite early some morning while we are thinking such gentle thoughts as peaceful men are wont to have.

Education today reflects the puzzling paradox of our society. We are gorged with sophisticated means and starved by confused goals. Pressed upon us is a galaxy of illusions in the name of reality.

Someone has suggested that the times we live in should be marked "Subject to change without notice." At first, the suggestion seems not only witty, but apt. Peered at more closely, it reveals an interesting

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contradiction, for the essence of change is that it is noticed.

The future will present us with seemingly insurmountable tasks, some clearly discernable. One task before us is to prepare for the huge increment in population that we may expect in the next 27 years. Estimates of the increase in the number of people the nation will have in the year 2000 vary between 60 and 100 million. If we split the difference and say 85 million, we'll be adding, in fewer than three decades, a population greater than the present population of both Germanies.

And all those new citizens will need food, clothes, housing, schools, hospitals, and everything else that people use. Just to provide the physical plant to accommodate them will require the equivalent of building one new city of a population of 250,000 every month. This will require a huge capital investment, one that must begin at once--long before the additional millions of people reach taxpayers age.

To prepare for such population growth would be difficult for a society at any time. But we face that growth at a time when we are also deeply concerned about our environment. We must reverse the trends toward polluting and poisoning our natural surroundings, and we must do so at a time when additional people are going to be demanding more of everything that pollutes. We will need more energy and therefore, more power plants, and more refineries, at just the time environmentalists are resisting each new power plant and refinery. We will increase our consumption of non-renewable resources and our demand for open space for recreation, space we will also need for housing. To complicate the problems further, we are committed to even out the disparities in the availability of essential human services to provide adequate schooling for each child, adequate housing for every family, adequate health care for every citizen. Try adding up the bill for that.

Perhaps we should heed the sage advice of Adlai Stevenson when he said, "We travel together, passengers on a little space ship, dependent on its vulnerable supplies of air and soil--preserved from annihilation only by the care, the work, and I well say the love, we give our fragile craft."

Most experts agree that we have about a dozen years in which to adopt policies that will keep our naive use of technology from becoming a disease that could leave our planet with its beauty gone, and only its helplessness remaining.

The change in the rate of change continues its seemingly inexorable course. When you accelerate the rate of change and create a milieu based primarily on temporary relationships and indeed we have done just that, you increase the rate at which the individual is called on to make adaptive decisions. We are asking individuals to make ever more coping decisions--in shorter intervals of time. We are changing the nature of the decisions, making them more complex. When you introduce change into a social order you introduce new things--surprises, unpredictable situations, new circumstances, bizarre or unusual conditions, crises and opportunities. This means that the individual is less and less able to deal with reality through preprogramed decisions, through habitual responses and through routines. He is forced into more creative decision-making, which relies on inventing a response rather than repeating one. The faster the rate of change the more non-routine the responses.

As he lay on his deathbed in 1902, one of the more powerful Englishmen of the Victorian era, Cecil John Rhodes said: "So little done, so much to do". In a wholly different context, Rhodes's last words provide a fitting bumper sticker slogan for today--"Humankind has very much to do and very little time in which to do it."

We are, I believe, involved at present in what I can only call a Third World War. The combatants are not armies of human beings bent on destroying each other for nationalistic reasons; rather, they are the human personality vying human technology. Man's struggle to save his personality from destruction by technology is something more than a substitute for war. It is a form of war itself. And this war, the crucial crisis of our time, is likely to continue perhaps far into the next century."

Perhaps I am suffering from what John Maddox recently called "The Domsday Syndrome," but I honestly believe that in the very real threat of bia hell on earth we will find a new reasoned and desirable discipline which will replace the authoritarian discipline of the medieval hell. The thirteen-century "hell in the hereafter" of Dante's Divine Comedy served to preserve the power of popes and princes. The twentieth-century threat to the welfare of humankind in the here-and-now may motivate us at least to take what John Platt called the step from being merely men to becoming man.

This will be especially difficult because we must learn to cope with the little black box. The computer, with its promise of a million-fold increase in man's capacity to handle information, will undoubtedly have the most far-reaching social consequences of any contemporary technical development. The potential for good in the computer and the danger inherent in its misuse exceed our ability to imagine. There is going to be more and more automatic control in our lives in the years ahead--through the means by which we will carry on big business, big government, production, finance, communications, trade and distribution in the complex and centrally organized civilization of our times. In 1956 there were fewer than 1,000 computers in the United States. Today, there are more than 30,000 or more than \$20 billion dollars worth. By 1976, the machine population may reach 100,000. These figures will, of course, be greatly increased through the growth of data processing in other nations. A decade ago, our machines were capable of 12 billion computations per hour. Today, they can do more than 20 trillion, and by 1976 they will attain 400 trillion, or about 2 billion computations per hour for every man, woman, and child. Quite evidently, the threshold of the computer age has barely been crossed.

We seem always in our times to be crossing one threshold or another. But here, instead of proudly carrying our mechanical bride across the threshold, with a firm stride and a glint in our eye, we seemed to have stumbled headlong into an enormous room peopled with strange creatures whose language is somewhat unintelligible. Yet we are going to live in this room for the rest of our lives, with the little black box at our side. It will understand--but will we?

If we listen carefully to some of the voices in this enormous room it would tell us, perhaps, of things in the offing.

- Already installed in several urban areas are computer-controlled traffic systems. Sensors in the streets measure the number of cars and the computer analyses the data and regulates the traffic lights.
- Computers can now aid psychiatrists in rearranging a patient's random experiences and concepts into a logical more meaningful order so that the patient can understand them better.
- Among its many uses in automated manufacturing the computer now can control assembly of radios from component parts at the rate of 1,000 a day.
- A man-like machine has been developed that can perform space or underwater exploration, handle delicate instruments and act as a military vehicle.
- Students can now share a digital computer that adapts lessons to their individual needs and to performance standards of various instructors.
- As well as storing names and records, including aliases, of persons and stolen vehicles for instantaneous checking by policemen on the beat, computers are also helping to solve crimes by assimilating facts and comparing fingerprints to single out suspects from thousands of records.
- An eerie-looking pair of huge eyeglasses, with built-in photocells, can measure light reflected from the wearer's eyes and feed the information into a computer that can diagnose brain disorders with great precision.
- A virtually "immortal" telephone switching system has been devised that fixes itself temporarily if a part fails. In the meantime, it figures out what went wrong and tells the maintenance man about it, never allowing itself to stop operating.
- One computer can do the work of many lawyers by locating appropriate precedents for court cases sifting through thousands of cases electronically in minutes.
- The Army has designed a computer that can state a full-scaled battle against an enemy.
- Probable authorship of disputed manuscripts can be quickly studied and determined by computers. Using certain keywords and phrases, a computer recently matched the Federalist Papers with various authors and selected James Madison as the likely author.
- Highspeed computers are being programmed to automatically culture and analyze bacteria, viruses and other infectious agents in order to immediately identify infectious diseases and enable hospitals and laboratories to begin treatment sooner.

- Extremely highspeed photocomposition is being accomplished by computers which prepare finished copy at the rate of 1,000 characters per second.
- Many thousands of dairy farms in all 50 states are participating in a program of electronic storage of records for hundreds of thousands of cows. In this way, the best milk producers can be pinpointed to produce better herds through selective breeding.
- Manufacturing firms are linking their plants to sales offices with computers for instant transmission of production statistics and data, as well as location of the closest availability of products in inventory.
- All forms of information--oral, written, photo or drawing, whether on paper, film, radio or TV--can now be translated into identical electronic impulses which can be processed, and either stored or transmitted anywhere in the world in less than 1/7 of one second.
- A baby electrochemical brain has been constructed which works like that of a human. The brain is taught by spanking it, giving it electrical shocks, each time it gives a wrong response. These shocks cause dendrite growths, exactly like those in the human brain, and thus modify its future behavior.
- With the aid of computer prepared punchcards, a chemical company is mixing and preparing for shipment 100 formulations involving 200 different ingredients, in varying proportions, all from a central automated control panel.
- An electronic optical scanner, that reads machine-printed addresses, sorts mail 15 times faster than the best postal clerk, is expected to help speed delivery of the 72 billion pieces of mail going through our postal system annually.
- Which color a laser emits can be controlled at electronic speeds with a new instrument that can make 125,000 color selections per second.
- Computers which turn complex mathematical formulas into three-dimensional drawings on a screen are greatly aiding designers. The drawing can then be enlarged in detail, changed in perspective or altered by a designer using a light pen.
- Use of computers to store and instantly locate millions of pieces of information is well known. The computer can also store graphic materials, maps, charts, blueprints, photos and, on command, reproduce, enlarge and project this material.
- As you know, it takes only a few millionths of a second now for a computer to tell an airline reservation clerk if a seat is available on any of their flights at any airport in the country.

- ° Computers are now assimilating data on students' past school records to recommend course programs that the student can handle.
- ° Electronic switching has enabled telephone companies to offer such new services as having calls automatically transferred to any number at which you can be reached, automatic dialing of frequently called numbers, and notifying the caller when a busy line becomes free.
- ° Following successful research in performing activities such as transmitting Morse Code and turning on an electric light switch, by amplifying brain waves experts predict that man including paralyzed patients may some day do work through computers by merely thinking about it.
- ° An electronic voice can now emit human speech without having sounds prerecorded on tape. An analogue computer translates a digital computer's thoughts into speech impulses. The translator has 17 sections that duplicate functions of human vocal organs.
- ° A computer run passenger-carrying rapid-transit system has been developed. With only a dispatcher at a central panel to monitor the system, the railed cars will travel at great speeds and stop to discharge and accept passengers, all without need for human control.
- ° These, then, are but a few of the realities of today.

"From the dawn of human history," said Alfred North Whitehead, "mankind has always been losing its faith, has always suffered from the malignant use of material power, has always suffered from the infertility of its best intellectual types, has always witnessed the periodic decadence of art."

And yet mankind has progressed. The type of modern man who would have most chance of happiness in ancient Greece--at its best period--is probably, as now, an average professional heavyweight boxer and not an average Greek scholar from Oxford or Germany. Indeed, the main use of the Oxford scholar would have been his capability to write an ode in glorification of the boxer.

Nothing does more harm in unnerving men for their duties in the present than the attention devoted to the points of excellence in the past as compared with the average failure of the present day. And of course, that is one of our problems. When we do compare the slums of a major modern city to the glory that was Greece and the grandeur that was Rome, we not only compare apples and transistors, but our yearning for the past obscures the reality of today and the promise inherent in our tomorrow. We are still blind to what appears to be a fact that something most extraordinary is happening to us. We close our eyes and lament our blindness. What is unforeseeable in the foreseeable future is that we will open them.

And it is of this that I would like to devote my few remaining minutes. How is it that by turning inward to ourselves we would see the outer world we have ourselves created? And how, by turning to each other, we will find the worlds within ourselves? Should we fail to do this, and soon, then

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Ellul's grim conclusion "when the edifice of the technical society is completed the stains of human passion will be lost amid the chromium gleam" may alas, be all too prophetic.

If we had looked for that trace, that first faint foreshadowing twenty years ago of what the new society might be like, we should perhaps have looked toward San Francisco and Venice and North Beach.. to the Beatniks. There, then, visibly, audibly, sensibly, in joy and grief, ecstasy, and agony, wail and laughter, mad motions and quiet contemplation, orgy and debate, what was to be was being sought and seized and shaped, with leadings and misleadings, tremolo and blatancy, false start and brave beginning. There, then, in the quiet womb of time reposed and stirred that whose spiritual issue and dissent today is what is being variously called the new generation, the new youth, the new left movement.

What is it that I see in the range of the young, in what might best be loosely termed "the movement", that makes me suggest that the seed of the transition society is highly visible and palpatating. Look at the young:

1. They disavow work as intrinsically and inherently valuable--and particularly the glorification of work to avoid coping with the problems of aggression.
2. They withdraw from the idolatry of self and those merely projected and extended selves--my family, my city, my class or race or religion or nation--in favor of something more than tolerance.
3. They indicate a heightened appreciation for goods that are good only in the giving, such as folk song singing or the playing and reproducing of music as against the standard goods that are mere counters in a game.
4. They shy away from overdrawn distinctions, particularly dualisms, like good and evil, masculine and feminine, right and wrong, in favor of a sense of the spectrum of similarities that underlies experience.
5. They refuse to accept combative and competitive approaches in nearly all of their forms.
6. They possess an enormously enhanced and increased valuation of love in all its extended and various manifestations.
7. They discard rules as the tools of principal reliance, preferring instead, a unique and personal response to a situation that is viewed in its own uniqueness and novelty.

Do you see, as I see faintly, the foreshadowing both of the end of what is and the beginning of what is to be? On one side, one may see in them the emergence of a transitional character between that necessitated now and that which will be apt for the era of abundance. One can see in their society I think, the seeds of the transitional society. They are engaged in bringing to an end the most dramatic instances of that which even now makes us utterly morally incredible and what would, under plenty, bring us to an end altogether.

The really great confrontation in our present world, and one not too likely to change in the next few decades, is between those who have and those who have not. This is true within any society we know of and it applies to nations as well as individuals in a technological milieu. If we desire we can produce all of the physical things that anyone in the world needs (not wants). This confrontation becomes a sort of make-believe imagery because we still act on an imprint that goes back to a much earlier time, "The poor we shall always have with us". We will have the poor just so long as we consider it in our interest to keep them that way.

The real have-nots are not only the poor, but the disenfranchised elements of our technological society, those too young to be allowed a voice in government or economic system, those too old to participate in any meaningful way in the society they helped to build, those too ill to participate in anything but self-survival, those too ignorant to find useful places in society, those who are in jails or concentration camps or urban slums or dirt-poor rural areas who cannot participate because they have never been given the incentive nor the means to do so. Even in our society, this applies to the majority of the people. It applies to an even larger majority elsewhere.

It has been suggested that a "World Parliament of Man" be called for sometime in the next few years. It would provide a forum for the expression of discontent of the disenfranchised of the world, whether disenfranchised by age, sex, disability, nonconformity, poverty, race, religion, nationality or ideology. The Parliament would be the natural outcome of the new politics as generated by the movement as opposed to the old politics and the establishment. Whether such a Parliament of Man shall come to be, and whether if it does, anything of consequence will come of it is one of the unforeseeables of our next twenty years. But perhaps, and only perhaps, here lies the beginning. Perhaps here may be created a participative system that transcends nations and ideologies and says only "ecce homo."

Kierkegaard said "He who fights the future has a dangerous enemy. The future is not; it borrows its strength from the man himself and when it has tricked him out of this, then it appears outside him as the enemy he must meet." If there are any eyes that see, they are the eyes of youth, and they do not see the future as an enemy, but as a friend, for the young shall inherit the earth. It may be true, as Ralph Gleason said: "the new youth is finding its poets on jukeboxes, and its religion in rock and roll, its preachers in nightclubs, and its philosophers with long hair and guitars. They're bound to come into conflict with authority, just as every religious movement has."

They are not too different from a youth of another time and place who saw the emergence of their future in the streets of Galilee, or while seated before the living Buddha some six centuries earlier, in the Deer Park at Benaros. They saw what older eyes were blind to see. Perhaps they see it now.

May I share with you an appealing anecdote of a first grade teacher calling upon a little boy to repeat the Lord's Prayer (presumably the anecdote antedated the Supreme Court's dictum or the teacher was either unaware or unmindful of it). The boy began "Our Father, who art in heaven, how'd you know my name?" There is a chuckle there, in this euphemistic

rendition, quite natural for one so young. But if one looks a little more closely there is also the nuance of a tear. For it is the universal enunciation of the human soul for the vastness and tenderness of divinity, the inevitable yearning for recognition, for identity, for love. The essence of all education has been, is, and always will be the search for the answer to "how'd you know my name?"

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